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EXAMINER	
SAUNDERS, PAUL	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,108	WU, DONGHUI	
	Examiner	Art Unit	
	Paul Saunders	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/16/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claims 4, 16, 20** objected to because of the following informalities. Appropriate correction is required.

As to **claim 4**, it is suggested to change the bolded word in the phrase "c.sub.2.sup.(2) is another second **weigh** given to the green color value" to weight.

As to **claims 16 and 20**, they must end in a period. It is suggested to replace the final semi-colon with a period.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-3, 22-23, 25** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg.

As to **claim 1**, Luo discloses a method for removing a red eye from an image, comprising: calculating a weighted red value for each pixel in the image based on (1) red, green, and blue color values and (2) a luminance of each pixel

in the image (page 3 [0061-0064] – equation 1 is based on r, g, b, and a luminance value in the denominator and by modifying the weighing factors it can be weighted for red values); selecting a plurality of pixels in the image having weighted red values greater than a threshold as red eye pixels 88 (fig. 9, page 4 [0065-0072] – the final redness map contains a plurality of selected pixels); and correcting the red eye pixels to remove the red eye from the image (page 1 [0009], page 10 [0128-0129]).

Luo does not expressly disclose calculating a weight for each pixel.

Hardeberg discloses calculating a weighted red value for each pixel in the image 230 (fig. 2, col. 4 lines 7-17 – specifically when an ROI is not defined, as it is optional).

Luo and Hardeberg are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous weight calculation to be applied to each pixel of the image as taught above by Hardeburg. The motivation would have been to more fully detect the red eye defect in the image (Hardeburg col. 1 lines 59-61).

Therefore it would have been obvious to combine Luo and Hardeburg to obtain the above modifications.

As to **claim 2**, Luo further discloses the method of claim 1, wherein said calculating comprises: 14 f 1 = c 1 (1) r + c 2 (1) g + c 3 (1) b Y ,wherein f.sub.1 is the weighted red value, r is the red color value, g is the green color

value, b is the blue color value, c.sub.1.sup.(1) is a first weight given to the red color value, c.sub.2.sup.(1) is a second weigh given to the green color value, c.sub.3.sup.(1) is a third weight given to the blue color value, and Y is the luminance (page 3 [0061-0062]).

As to **claim 3**, it has not been expressly disclosed yet: the method of claim 2, wherein c.sub.1.sup.(1) is 0.5, c.sub.2.sup.(1) is 0.5, c.sub.3.sup.(1) is -1, Y=0.299r+0.587g+0.114b, and the threshold is 0.5.

At the time of the invention it would have been obvious to one of ordinary skill in the art to arrive at constant and threshold values appropriate for red eye detection, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to **claim 22**, Luo and Hardeburg further disclose the method of claim 1, wherein the method is implemented in software executed by a computer or firmware embedded into digital cameras, printers, scanners, or mobile phones (Luo fig. 2, page 1 [0006], page 2 [0051-0052], Hardeburg col. 3 lines 45-58).

The same motivation is used as is used in the parent claim.

As to **claim 23**, Luo discloses a method for removing a red eye from an image, comprising: calculating a weighted red value for each pixel in the image from a luminance, a red chrominance, and a blue chrominance values of each pixel in the image (page 3 [0061-0064]), comprising: 16 f 1 = 1.41514 (Cr - 128) + 1.23014 (Cb - 128) Y ;wherein f.sub.1 is the weighted red value, Cr is the red

chrominance value, Cb is the blue chrominance value, and Y is the luminance value (R4, page 4 [0064] – f1 is essentially equation 1 in digitized YCbCr color space); selecting a plurality of pixels in the image having weighted red values greater than a threshold as red eye pixels; and correcting the red eye pixels in the image (page 1 [0009], page 10 [0128-0129]).

Luo does not expressly disclose calculating a weight for each pixel.

Hardeberg discloses calculating a weighted red value for each pixel in the image 230 (fig. 2, col. 4 lines 7-17 – specifically when ROI is not defined, as it is optional).

Luo and Hardeberg are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous weight calculation to be applied to each pixel of the image as taught above by Hardeburg. The motivation would have been to more fully detect the red eye defect in the image (Hardeburg col. 1 lines 59-61).

Therefore it would have been obvious to combine Luo and Hardeburg to obtain the above modifications.

As to **claim 25**, Luo and Hardeburg further disclose the method of claim 23, wherein the method is implemented in software executed by a computer or firmware embedded into digital cameras, printers, scanners, or mobile phones (Luo fig. 2, page 1 [0006], page 2 [0051-0052], Hardeburg col. 3 lines 45-58).

The same motivation is used as is used in the parent claim.

3. **Claims 4-5, 24** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg as applied to claim 2 or 24, and further in view of U.S. Patent Application No. 2004/0240747 A1 of Jarman et al. ("Jarman").

As to **claim 4**, it has not expressly been disclosed yet.

Jarman discloses the method of claim 2 and 23, prior to said correcting, further comprising: calculating another weighted red value for each pixel in the image from the red, the green, and the blue color values of each pixel in the image, comprising: 15 f 2 = c 1 (2) r + c 2 (2) g + c 3 (2) b Y ,wherein f.sub.2 is said another weighted red value, c.sub.1.sup.(2) is another first weight given to the red color value, c.sub.2.sup.(2) is another second weigh given to the green color value, and c.sub.3.sup.(2) is another third weight given to the blue color value; and selecting another plurality of pixels in the image having another weighted red values greater than another threshold as additional red eye pixels (figs. 2-9, page 4 [0086-0091] – red, green and blue values are used to compute HSL values; In Pass 1, three types of red eye are detected with associated saturation and lightness levels including variations of the color red such as pink).

Luo and Jarman are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye detecting algorithm to check for more then one type of red eye using red weighted values specific to each type as

taught above by Jarman. The motivation would have been to more fully detect red eye (Jarman page 1 [0007]).

Therefore it would have been obvious to combine Luo, Hardeburg and Jarman to obtain the above modifications.

As to **claim 5**, it has not been expressly disclosed yet: the method of claim 4, c.sub.1.sup.(2) is 0.6667, c.sub.2.sup.(2) is 0.3333, c.sub.3.sup.(2) is -1.0, Y=0.299r+0.587g+0.114b, and the threshold is 0.5.

At the time of the invention it would have been obvious to one of ordinary skill in the art to arrive at constant and threshold values appropriate for red eye detection, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to **claim 24**, Luo discloses the method of claim 23, prior to said correcting, further comprising: calculating another weighted red value for each pixel in the image from the red, the green, and the blue color values of each pixel in the image, comprising: 17 f 2 = 0.69662 (Cr - 128) - 1.88671 (Cb - 128) Y ,wherein f.sub.2 is said another weighted red value; and selecting another plurality of pixels in the image having another weighted red values greater than another threshold as additional red eye pixels (R4, page 4 [0064] – f2 is essentially equation 1 in digitized YCbCr color space).

Unlike Luo, Jarman discloses multiple calculations at the same time for weighted red value selection (figs. 2-9, page 4 [0086-0091]).

The same motivation is used here as is used in claim 4.

4. **Claims 6, 9-10, 13, 18** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg as applied to claim 1 above, and further in view of U.S. Patent No. 7,042,505 B1 to DeLuca.

As to **claim 6**, it has not been expressly disclosed yet.

DeLuca discloses the method of claim 1, prior to said correcting, further comprising: grouping a plurality of red eye pixels that are contiguous into a red eye region (col. 3 line 67); determining if the red eye region comprises a substantially round pupil (fig. 3, col. 3 lines 19-23); and rejecting the plurality of red eye pixels if the red eye region does not comprise a substantially round pupil (col. 4 lines 4-5, 11-13).

Luo and DeLuca are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye verification to also verify if the current red eye region round as taught above by DeLuca. The motivation would have been to aid in "eliminating red-eye phenomenon" (DeLuca col. 6 line 29).

Therefore it would have been obvious to combine Luo, Hardeberg and DeLuca to obtain the above modifications.

As to **claim 9**, DeLuca further discloses the method of claim 6, further comprising: determining if the red eye region is too close to another red eye

region formed by grouping another plurality of red eye pixels that are contiguous 410; and rejecting the plurality of red eye pixels if the red eye region is too close to said another red eye region 415 (fig. 10, col. 4 lines 14-27).

The same motivation is used as is used in the parent claim.

As to **claim 10**, DeLuca further discloses the method of claim 9, wherein said determining if the red eye region is too close to another red eye region comprises: determining if the geometric center of the red eye region is within a range of distances of said another geometric center of said another red eye region, wherein the range of distances is proportional to a pupil radius of the red eye region (fig. 10, col. 4 lines 14-27 – the radius of the grouping involves determining a geometric center, proportional by 2 to 5 times).

The same motivation is used as is used in the parent claim.

As to **claim 13**, DeLuca further discloses the method of claim 9, further comprising: determining if the red eye region is proximate to a facial region; and rejecting the plurality of red eye pixels if the red eye region is not proximate to a facial region (col. 4 lines 21, 29, 33, 46, 14-46).

The same motivation is used as is used in the parent claim.

As to **claim 18**, DeLuca further discloses the method of claim 13, further comprising: determining if the red eye region is proximate to a sclera; and rejecting the plurality of red eye pixels if the red eye region is not proximate to a sclera (fig. 6, col. 4 lines 21-44).

The same motivation is used as is used in the parent claim.

5. **Claim 7** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca as applied to claim 6 above, and further in view of U.S. Patent No. 6,714,665 B1 to Hanna et al. ("Hanna").

As to **claim 7**, it has not yet been expressly disclosed.

Hanna discloses the method of claim 6, wherein said determining if the red eye region is substantially round pupil comprises: determining a geometric center of the red eye region; for each radius in a range of radii, determining a difference between (1) weighted red values of the red eye pixels located at a radius and at a range of angles about the geometric center and (2) weighted red values of the red eye pixels located at a next radius in the range of radii and at the range of angles; selecting one radius in the range of radii that provides a largest difference as a pupil radius for the red eye region; determining a first ratio of (1) a first number of the red eye pixels located in a circle having the pupil radius to (2) an area of the circular; determining a second ratio of (1) a second number of the red eye pixels in a ring having an inner radius of the pupil radius and an outer radius of a maximum radius in the range of radii to (2) an area of the ring; and determining a difference between the first ratio and the second ratio, wherein the red eye region does not comprise a substantially round pupil if the difference is less than a threshold (fig. 22b, col. 48 lines 30- 63).

Luo and Hanna are analogous art because they solve the same technical problem namely pupil detection.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye region validation to further verify region roundness as taught above by Hanna. The motivation would have been to require no involvement by object in the image (Hanna col. 1 lines 67).

Therefore it would have been obvious to combine Luo, Hardeberg, DeLuca and Hanna to obtain the above modifications.

6. **Claim 8** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca, U.S. Patent No. 6,714,665 B1 to Hanna et al. ("Hanna") as applied to claim 7 above, and further in view of U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz").

As to **claim 8**, Gaubatz further discloses the method of claim 7, wherein the range of radii ranges from 0.5 to 1.5 times a distance from the geometric center to a farthest red eye pixel in the red eye region (fig. 8, 9 – on graph pixel 4 being the farthest red eye pixel the radi considered range from 2-6, .5 to 1.5 times 4).

The same motivation is used as is used in claim 11.

7. **Claim 11** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca as applied to

claim 10 above, and further in view of U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz").

As to **claim 11**, Gaubatz further discloses the method of claim 10, further comprising determining the pupil radius as follows: determining a geometric center of the red eye region (fig. 8 – point 0); for each radius in a range of radii, determining a difference between (1) weighted red values of the red eye pixels located at a radius and at a range of angles about the geometric center and (2) weighted red values of the red eye pixels located at a next radius in the range of radii and at the range of angles; and selecting one radius in the range of radii that provides a largest difference as a pupil radius for the red eye region (fig. 8, 9, col. 15 lines 18-57 – difference is found when computing min and greater than).

Luo and Gaubatz are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye region validation to proper discard pixels outside of an appropriate pixel radius as taught above by Gaubetz. The motivation would have been to do red eye correction efficiently (Gaubetz col. 2 lines 40-43).

Therefore it would have been obvious to combine Luo, Hardeberg, DeLuca and Gaubatz to obtain the above modifications.

8. **Claim 12** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No.

6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca, U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz") as applied to claim 11 above, and further in view of U.S. Patent Application No. 2005/0196067 A1 to Gallagher et al. ("Gallagher").

As to **claim 12**, Gallagher discloses the method of claim 11, wherein the range comprises 10 to 14 times the pupil radius (page 6 [0083-0094] — Rd*T3 is equivalent to multiples of the pupil radius).

Luo and Gallagher are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous pupil radius selection to consider ranges as taught above by Gallagher. The motivation would have been to be more responsive to red region grouping situations (Gallagher page 1[0010]).

Therefore it would have been obvious to combine Luo, Hardeberg, DeLuca, Gaubatz and Gallagher to obtain the above modifications.

9. **Claim 14** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca as applied to claim 13 above, and further in view of U.S. Patent No. 7,035,461 B2 to Luo et al. ("Luo1").

As to **claim 14**, Deluca further discloses the method of claim 13, wherein said determining if the red eye region is proximate to a facial region comprising: in a ring having an inner and outer radii proportional to a pupil radius of the red

eye region (col. 4 lines 12-16); rejecting the plurality of red eye pixels if the most common color in the red eye region is not within the range of the threshold skin colors.

Luo1 discloses generating a histogram for pixels S4a-d (fig. 3); selecting a most common color value in the histogram S4e; comparing the most common color to a range of threshold skin colors S4i-j.

Luo and Luo1 are analogous art because they solve the same technical problem namely red eye detection.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye region verification process to further detect facial regions by the histogram method taught above by Luo1. The motivation would have been to improve face region detection (Luo1 col. 2 lines 5-6).

Therefore it would have been obvious to combine Luo, Hardeburg, DeLuca and Luo1 to obtain the above modifications.

10. **Claim 15** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca, U.S. Patent No. 7,035,461 B2 to Luo1 et al. ("Luo1") as applied to claim 14 above, and further in view of U.S. Patent Application No. 6,895,112 B2 to Chen et al. ("Chen").

As to **claim 15**, it has not been expressly disclosed yet.

Chen discloses the method of claim 14, wherein said comparing comprises comparing the most common color value in HSV color space to the range of threshold skin colors in HSV color space (col. 3 lines 34-51).

Luo and Chen are analogous art because they are solving the same technical problem namely red eye detection.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous red eye region detection method to further carry out skin tone comparison in the HSV color space. The motivation would have been to ensure accuracy when identifying pixels that are of skin color (Chen col. 3 lines 36-38).

Therefore it would have been obvious to combine Luo, Hardeburg, DeLuca, Luo1 and Chen to obtain the above modifications.

11. **Claim 16** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca, U.S. Patent No. 7,035,461 B2 to Luo et al. ("Luo1") as applied to claim 14 above, and further in view of U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz").

As to **claim 16**, Gaubatz discloses the method of claim 14, further comprising determining the pupil radius as follows: determining a geometric center of the red eye region (fig. 8 point 0); for each radius in a range of radii, determining a difference between (1) weighted red values of the red eye pixels located at a radius and at a range of angles about the geometric center and (2)

weighted red values of the red eye pixels located at a next radius in the range of radii and at the range of angles; selecting one radius in the range of radii that provides a largest difference as a pupil radius for the red eye region (fig. 22b, col. 48 lines 30- 63).

The same motivation is used here as is used in claim 11.

12. **Claim 17** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca, U.S. Patent No. 7,035,461 B2 to Luo et al. ("Luo1"), U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz") as applied to claim 16 above, and further in view of U.S. Patent Application No. 2005/0196067 A1 to Gallagher et al. ("Gallagher").

As to **claim 17**, Gallagher discloses the method of claim 16, wherein the inner and outer radii comprises of 4 to 9 times the pupil radius (page 5 [0073-0081] – Rd*T3 is equivalent to multiples of the pupil radius).

The same motivation is used as is used in claim 12.

13. **Claim 19** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca as applied to claim 18 above, and further in view of U.S. Patent No. 6,204,858 B1 to Gupta.

As to **claim 19**, it has not expressly been disclosed yet.

Gupta discloses the method of claim 18, wherein said determining if the red eye region is proximate to a sclera comprises: generating a luminance

histogram for pixels in a ring having an inner and outer radii proportional to the pupil radius; selecting a brightest color in the luminance histogram; determine a ratio between a number of pixels in the ring having the most brightest color to a number of red eye pixels within a circle having the pupil radius; and rejecting the plurality of red eye pixels if the ratio of the red eye region is less than a threshold (fig. 2, 8, col. 2 line 62, col. 4 lines 42-59).

Luo and Gupta are analogous art because they solve the same technical problem namely red eye detection and correction.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous as taught above by Gupta. The motivation would have been to aide in the automation of red eye detection (Gupta col. 2 lines 19-21).

Therefore it would have been obvious to combine Luo and Hardeburg to obtain the above modifications.

14. **Claims 20-21** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2005/0047656 A1 to Luo et al. ("Luo"), in view of U.S. Patent No. 6,728,401 B1 to Hardeberg, U.S. Patent No. 7,042,505 B1 to DeLuca as applied to claim 19 above, and further in view of U.S. Patent No. 7,155,058 B2 to Gaubatz et al. ("Gaubatz")

As to **claim 20**, Gaubatz discloses the method of claim 19, further comprising determining the pupil radius as follows: determining a geometric center of the red eye region (fig. 8 point 0); for each radius in a range of radii,

determining a difference between (1) weighted red values of the red eye pixels located at a radius and at a range of angles about the geometric center and (2) weighted red values of the red eye pixels located at a next radius in the range of radii and at the range of angles; selecting one radius in the range of radii that provides a largest difference as a pupil radius for the red eye region (fig. 22b, col. 48 lines 30- 63).

The same motivation is used here as is used in claim 11.

As to **claim 21**, Gaubatz discloses the method of claim 20, wherein the inner and outer radii comprises 2 to 5 times the pupil radius (fig. 8, 9 – considering a default pupil radius of 1).

The same motivation is used here as is used in the parent claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Saunders whose telephone number is 571.270.3319. The examiner can normally be reached on Mon-Thur 8:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick Ferris can be reached on 571.272.3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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9/30/07

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